



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,871	02/11/2002	Lawson A. Wood	AW-19	2629

7590 08/11/2004
Lawson A. Wood
873 N. Frederick Street
Arlington, VA 22205

EXAMINER

WU, XIAO MIN

ART UNIT	PAPER NUMBER
----------	--------------

2674

8

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/068,871

Applicant(s)

WOOD, LAWSON A.

Examiner

XIAO M. WU

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 11-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 11-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Gibbons et al. (US Patent No. 5,122,791).

As to claims 1, 4, Gibbons discloses a method for displaying an image described by video words of a frame, the video words having bits with different bit ranks (col. 4, lines 18), the method comprising the steps of: (a) for each bit rank, turning pixels of a spatial light modulator on or off in accordance with values of the video words for the respective bit rank (Fig. 2); (b) steadily exposing the spatial light modulator to light for a light source during substantially the entire time that step (a) is conducted (8Ig, 4Ig, 2Ig, Ig, Fig. 2); and (c) driving the light source at a first energy level for one of the bit ranks and at a substantially greater second energy level for another of the bit ranks (e.g. 8Ig is greater than 4Ig as shown in Fig. 2) Gibbons further discloses substantially steadily exposing the spatial light modulator to light that varies substantially in intensity as required in claim 4 (see Fig. 2).

As to claims 2, 6, Gibbons discloses that the spatial modulator is any LCD panel (col. 1, line 16).

As to claim 5, Gibbons discloses that the light has intensity at one moment that is at least about twice intensity at another moment (e.g. 8Ig is twice intensity of 4Ig, see Fig. 2).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 7, 8, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbons et al. (US Patent No. 5,122,791) in view of Heimbuch et al. (US Patent No. 5,448,314).

As to claim 3, 7, and 8, it is noted that Gibbons does not specifically disclose the spatial light modulator is a digital micromirror device. However, it is well known in the art that the DMD is one kind of the spatial light modulator and it is similar to liquid crystal display since they are both need light source. For example, Heimbuch is cited to teach a color DMD display device with a backlight light source (see Fig. 4). It would have been obvious to one of ordinary skill in the art to have substituted the DMD as taught by Heimbuch for the LCD of the Gibbons because they are alternative for each other. Furthermore, Gibbons as modified discloses discontinuously exposing the digital micromirror device to brief-duration flashes of light, the flashes having intensities that depend on the respective bit rank (e.g. in the most significant bit, the flash has intensity of $8I_g$ and in a next most significant bit, the flash has intensity of $4I_g$, see Fig. 2).

As to claim 11, Gibbons as modified discloses the flashes are emitted from a red, green and blue light sources (6, 7, 8, Fig. 1).

Art Unit: 2674

5. Claims 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbons et al. (US Patent No. 5,122,791) in view of Heimbuch et al. (US Patent No. 5,448,314) and Florence (US Patent No. 5,640,214).

As to claim 12-15, note the discussion of Gibbons and Heimbuch above. It is noted that both Gibbons and Heimbuch do not disclose to flashes impinging on the digital micromirror device from a first direction and a second direction. Florence is cited to teach a DMD device as shown in Fig. 12, Florence discloses to flashes impinging on the digital micromirror device from a first direction and a second direction. It would have been obvious to one of ordinary skill in the art to have modified Gibbons and Heimbuch with the impinging light in different direction as taught by Florence because Florence's device prevents the mirror element from being naturally biased toward on position over the other (col. 1, lines 65-67).

As to claims 16 and 17, Florence discloses that the acute angle is about 70° from the vertical direction which is substantially less than 90°.

Response to Arguments

6. Applicant's arguments with respect to claims 1-8, 11-15 have been considered but are moot in view of the new ground(s) of rejection.

In applicant response, applicant points out that claims 1, 4, 8 and 13 are supported by the earlier applicant's own patent 6,348,907 which has effective filing date 1/31/1995. therefore, a new office action based on the new prior arts has been made.

Art Unit: 2674

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiao Wu whose telephone number is (703) 305-4721.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (703) 305-4709.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Application/Control Number: 10/068,871

Page 6

Art Unit: 2674

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377

xw

August 8, 2004



XIAO WU
PRIMARY EXAMINER
ART UNIT 2674